APPENDIX A

AIR MONITORING/ANALYTICAL LABORATORY REPORTS

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September 24, 2004

Shaw Group (Environmental & Infrastructure)
Suite/Building 202
291 Jimmy Parks Boulevard
Anniston, Alabama 36205

Subject: Site T38A Sampling and Analysis of Thirteen Bottles with Unknown Contents

Shaw Group (SGP) sampled/conducted HAZCAT screening analysis; collected Depot Area Air Monitoring System (DAAMS) tube samples for GC/MSD analysis to determine the presence/absence of military chemical warfare materials VX as the G-analog, GB, HD, and Lewisite as the 1,3-propanedithiol derivative (L-PDT) and to identify the components of the contents in the 13 bottles recovered during the T38A excavation operations. Simultaneously, along with the DAAMS sample collection the sample was monitored near-real time (NRT) with an FPD equipped MINICAMS to detect VX as the G-analog and GB; another XSD (halogen selective detector) equipped MINICAMS was used to detect Lewisite as the 1,2-ethanedithiol derivative and HD. DAAMS samples were collected from the bottles onto the DAAMS tubes at 0.20 liters/minute flowrate for 10 minutes. For Samples 10, 12, and 13 duplicate tubes were analyzed; one tube was analyzed in the SIM mode to determine the presence/absence of the chemical agents and/or to confirm the validity of a MINICAMS alarm (should that have occurred during sampling). A second tube was run in the SCAN mode to identify the components of the contents in the bottle(s). Monitoring of samples 1-9 and 11 did not result in MINICAMS alarms, therefore, only one tube from each sample was run in the SCAN mode to identify the contents of the bottles.

A total of thirteen bottles were sampled for analysis resulting in a total of twenty (26) DAAMS tube/samples collected. The MINICAMS alarmed during sample collection of samples 10, 12, and 13. GC/MSD analysis was conducted on Sample 10 first, then the other nine samples/tubes were analyzed in chronological order from 1-9 on 092204; sample 12 and 13 were analyzed first and then sample 11 on 092404. Sampling data, information, and abbreviated results are contained in the attached table. The DAAMS sampling logbook form and individual sample analytical results/reports are included as attachments/enclosures. A complete listing of the twenty (20) most abundant tentatively identified compounds (TICs) by sample are contained in the report associated with each sample and data file number. Page 11 of the associated data file report contains a short version of the twenty most abundant TICs.

If you had any questions or QS can be of further service, please contact myself or the QuickSilver corporate office at the address/phone number included at the top of the letterhead.

Robert H. Lee, EAC-NRCC
Principal Chemist
QuickSilver Analytics, Inc.

rhl
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Table of Shaw Group T38A Unknown Bottle Sampling & Analysis Results

Sample No.	Description	Datafile	Chemical Warfare Materiel(CWM)	Abbreviated List of Toxic Industrial and Other Chemicals
10	5 gallon pail w/bleach/carbon	09220410 09220411	<1.0 TWA	1.2-Dithiolane Chlorobenzene Benzaldehyde Acetophenone Gasoline/diesel series alkanes and/or associated combustion, degradation, and decompositions products.
1	Solid	09220412	<1.0 TWA	Acetophenone Benzaldehyde Phenol Diesel series alkanes and associated combustion, degradation, and /or decomposition products
2	Solid	09220415	<1.0 TWA	1,2-Dithiolane Benzaldehyde Acetophenone Diesel series alkanes and associated combustion, degradation, and/or decomposition products
3	Overpacked liquid/solid	09220417	<1.0 TWA	1,2-Dithiolane Acetophenone Benzaldehyde Phenol Diesel series alkanes and associated combustion, degradation, and decomposition products
4	Overpacked liquid/solid	09220419	<1.0 TWA	Acetophenone Phenol, Benzaldehyde Gasoline/Diesel series alkanes and/or associated combustion, degradation, and decomposition products
5	Overpacked liquid/solid	09220421	<1.0 TWA	1,2-Dithiolane Acetophenone Benzaldehyde Diesel series alkanes and associated combustion, degradation, and/or decomposition products
6	Overpacked liquid/solid	09220423	<1.0 TWA	Acetophenone Benzaldehyde Phenol Gasoline/Diesel series alkanes and/or associated combustion, degradation, and decomposition products

Encl 1

Table of Shaw Group T38A Unknown Bottle Sampling & Analysis Results (continued)

7	Overpacked liquid/solid	09220423	<1.0 TWA	1,1,2,2-Tetrachloroethane Toluene Chlorobenzene Pentachloroethane Acetophenone Gasoline/Diesel series alkanes and/or associated combustion, degradation, and/or decomposition products
8	Overpacked liquid/solid	09220427	<1.0 TWA	1,1,2,2-Tetrachloroethane (RT=3.83) Pentachloroethane (B) Hexzchloroethane Benzaldehyde Acetophenone Benzene derivatives Gasoline/Diesel series alkanes and/or associated combustion, degradation, and/or decomposition products
9	Overpacked liquid/solid	09220429	<1.0 TWA	1,1,2,2-Tetrachloroethane (RT=3.82) Tetrachloroethylene (B) Pentachloroethane Benzaldehyde Chlorobenzene and other benzene derivatives Gasoline/Diesel series alkanes and/or associated combustion, degradation, and decomposition products
11	Overpacked liquid	09240412 09240413	<1.0 TWA	Benzophenone Benzaldehyde Benzoyl fluoride Biphenyl Diesel series alkanes and associated combustion, degradation, and decomposition products.
12	Overpacked liquid/solid	09240412 09240414	<1.0 TWA	Toluene @ RT=2.863 identified incorrectly as G-analog VX 1,1,2,2-Tetrachloroethane 1,2-Dithiolane Acetophenone Benzaldehyde 2-Pentanone Diesel series alkanes and associated combustion, degradation, and decomposition products
13	Overpacked solid	09240417	<1.0 TWA	Acetophenone Dimethyl silane Phenol Benzaldehyde Diesel series alkanes and associated combustion, degradation, and decomposition products

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October 19, 2004

Subject: Fort McClellan Support, Contract #DACA21-96-D0018, 45263 OP

Dear Mr. Moran

Enclosed is the Project Summary Report for QuickSilver's support to the 3X scrap removal in Training Area T-38, and and site T-24 Gas Cylinder Sampling projects. The report's enclosures summarize the routine and non-routine monitoring results and provide data packages for days when MINICAMS alarms occurred.

If you have any questions, please contact the undersigned.

Sincerely,

Patti Riggs
Analytical Manager
Quicksilver Analytics, Inc.

Encl: Project summary report, 101804-001, with 12 enclosures
Customer survey

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October 5, 2004

Shaw Environmental, Inc.
312 Directors Drive
Knoxville, Tennessee 37923

Near-Real Time Air Monitoring Report for 3X Scrap Removal
Training Area T38, Former Technical Escort Reaction Area, Parcel 186(6)
Training Area T24A, Former Chemical Munitions Disposal Area, Parcel 187(7)

1. Background Information

QuickSilver Analytics Inc. (QS) and team member US Army Technical Escort Unit (USATEU) personnel mobilized from Aberdeen Proving Ground, Maryland, on July 31 & August 1, 2004; arriving at the former Army installation, Ft.McClellan, located in Anniston, Alabama, on August 2, 2004. The QS team's mission was to provide near-real time air monitoring support and confirmatory laboratory analysis for 3X scrap removal work being conducted by The Shaw Group (Environmental & Infrastructure) for the US Army Corps of Engineers, Mobile District under Task Order CK10, Contract Number DACA21-96-D-0018.

QS team personnel were onsite from August 2 through October 2, 2004. Equipment installation and checkout began on August 2 and was completed with all monitoring and analytical equipment operational on/about August 7, 2004. Onsite operations at Site T38 began the weekend of August 7/8 and continued until on/about August 10-11, 2004, when operations shifted over to Integrated Environmental Services (IES) Site 24A cylinder sampling, analysis, characterization, and disposal operations.

T38 operations resumed on/about August 11, 2004, and continued through September 29, 2004. Operations were periodically shut down for crew rest/rotation (after 10 days of continuous work – including weekends); while awaiting authorization/changes/variances in work/health & safety plans; and in response to the effects of several hurricanes and associated weather conditions.

QS team personnel began demobilization on/about September 30, 2004. Monitoring equipment, laboratory equipment, and platform(s)/laboratory were cleaned, uninstalled/packed, and prepared for shipment. USATEU personnel and equipment

departed the site en route back to Maryland on September 30, 2004. The QS mobile laboratory, equipment, and generator were loaded onto Collette Transport's lowboy/flatbed trailer the evening of October 1, 2004 and departed the area on October 2, 2004. QS cleared the site, secured the Shaw Group/government compound; turned in keys and departed for Maryland on October 3, 2004.

2. Site T38 Near-Real Time Air Monitoring Operations

Near-real time air monitoring support was provided for health and safety purposes and to determine the 3X status of scrap and items recovered from Site T38. USATEU provided low-level near-real time air monitoring for VX/GB and HD/Lewisite using MINICAMS. In the event of an alarm/ring-off at or above 0.75 TWA, Depot Area Air Monitoring System (DAAMS) sorbent sampling tubes were collected for confirmation analysis by Dynatherm ACEM 900 desorption/Agilent Technologies 6890 gas chromatograph equipped with 5973 mass spectrometer. One tube was analyzed to provide confirmation of the MINICAMS alarm (positive/negative); a second tube was analyzed to identify the material that may have interfered with the MINICAMS and caused a false alarm and to identify the other compounds collected onto the tube. Routine daily MINICAMS NRT monitor data packages where there were no MINICAMS alarms/ring-offs are included at Enclosure 1.

The following sections discuss only the non-routine MINICAMS alarms/ring-offs and results of the DAAMS tube GC/MS confirmation analyses.

a. August 16, 2004 – 0717 hours; MINICAMS alarmed at 1.91 TWA for HD. Subsequent HD results dropped to 0.63 and 0.65 TWA, respectively in the next two cycles and continued to drop to background levels. DAAMS tubes were collected by Shaw personnel and transported to the QS mobile laboratory for analysis. The MINICAMS alarm was determined to be a false alarm due to chlorinated solvents saturating the excavation. 1,1,2,2-tetrachloroethane and tetrachloroethylene were identified as major contaminants. 1,1,2,2-tetrachloroethane (1,1,2,2-TCE) is one of the major components of the obsolete military Decontamination Agent Non-Corrosive (DANC) and tetrachloroethylene is one of the major common breakdown products of the 1,1,2,2,-TCE. See Enclosure 2 for QS letter dated August 16, 2004, QS Daily NRT Monitoring Report (MINICAMS) dated 081604, and GC/MS confirmation analysis data files 08160402 and 08160403.

b. August 17, 2004 – 0944 hours; MINICAMS alarmed at 2.10 TWA for HD. Subsequent HD results dropped to 0.16 and 0.43 TWA, respectively in the next two cycles and continued to drop toward back ground levels. The MINICAMS alarm was determined to be a false alarm due to interference from diesel series alkanes, benzaldehyde, acetophenone, and phenol. See Enclosure 3 for QS letter dated August 18, 2004, QS Daily NRT Monitoring Report (MINICAMS) dated 081704, and GC/MS confirmation analysis data files 08170410 and 08170412.

c. August 19, 2004-1345 hours; MINICAMS alarmed at 1.96 TWA for HD while monitoring hotbox T38A-001 with a second HD alarm at 1355 hours. The MINICAMS probes were removed from the hotbox after the second alarm. Subsequent sample cycles dropped below the 0.75 TWA alarm level and trended down to background levels. The MINICAMS alarms were determined to be false alarms due to interference from 1,1,2,2-tetrachloroethane, phenol, benzaldehyde, decane, heptane, diesel series alkanes and associated combustion, degradation, and decompositions products. See Enclosure 4 for QS letter dated August 20, 2004, QS Daily NRT Monitoring Report (MINICAMS) dated 081904, and GC/MS confirmation analysis data files 08190416 and 08190419.

d. August 31, 2004-0731 hours; MINICAMS alarmed at 0.76 TWA; subsequent cycles dropped to 0.23 and 0.17 TWA, respectively and trended down to background levels. The MINICAMS alarm was determined to be a false alarm due to interference from toluene, xylene, phenol, 1,1,2,2-tetrachlrooethane, benzaldehyde, decane, gasoline/diesel series alkanes and associated combustion, degradation, and decomposition products. See Enclosure 5 for QS letter dated August 31, 2004, QS Daily NRT Monitoring Report (MINICAMS) dated 083104, and GC/MS confirmation analysis data files 08310414 and 08310415.

e. September 2, 2004 – 1044 hours; MINICAMS alarmed at 0.80 TWA for VX; subsequent cycles were less than 0.75 TWA and trended back to background levels. The MINICAMS alarm was determined to be a false alarm due to interference from diesel series alkanes and associated combustion, degradation, and decompositions products. See Enclosure 6 for QS letter dated September 02, 2004, QS Daily NRT Monitoring Report (MINICAMS) dated 090204, and GC/MS confirmation analysis data files 09020412 and 09020413.

f. September 2, 2004 – 1053 hours; MINICAMS alarmed for HD at 1.23 TWA with subsequent alarms at 1.49 and 1.50 TWA. The heat-traced sample line was removed from the loader bucket after the third alarm and the reading trended back to background levels. The MINICAMS alarm was determined to be a false alarm due to interference from 1,2-dithiolane, acetophenone, benzaldehyde, diesel series alkanes and associated combustion, degradation, and decomposition products; and other benzene related compounds. See Enclosure 7 for QS letter dated September 02, 2004, QS Daily NRT Monitoring Report (MINICAMS) dated 090204(included in Enclosure 6), and GC/MS confirmation analysis data files 09020409, 09020410 and 09020411.

g. September 22, 2004 – 1038 hours; Item/bottle #10 of 13 being sniffed alarmed at 28.2 TWA for Lewisite; subsequent cycles alarmed at 25.5, 6.95, and 1.21 TWA for Lewisite, respectively until the heat-traced sample line was removed from monitoring bottle #10 after which the Lewisite level dropped below 0.75 TWA and trended to background levels. The MINICAMS alarm was determined to be a false alarm due to interference from 1,2-dithiolane, chlorobenzene, benzaldehyde, acetophenone, gasoline/diesel series alkanes and associated combustion, degradation, and

decomposition products. QS Daily NRT Monitoring Report for 092204 is included at Enclosure 8. Enclosure 10 contains the QS letter dated September 24, 2004, which contains the narrative pertaining to the analysis of the 13 recovered bottles and also contains the GC/MS confirmation analysis data files associated with the DAAMS tubes for each bottle listed in the Daily Staff Journal of Duty Officer's Log for September 22, 2004.

h. September 23,2004 – 1348 hours MINICAMS alarmed for HD at 0.77 TWA while 3X monitoring the first hot box for the day with a second cycle dropping to 0.68 TWA and a third cycle alarming at 0.76 TWA. The heat traced sample line was removed at 1437 and the last HD alarm was 1.75 TWA at 1447 hours. The MINICAMS alarms were determined to be false ring-offs due to interference from 1,1,2,2-tetrachloroethane, 2-methyoxy furan, 1,3-dithiolane, propane, benzaldehyde, acetophenone, diesel series alkanes and associated combustion, degradation, and decomposition products. See Enclosure 9 for QS Daily NRT Monitoring Report dated 092304 and GC/MS confirmation analysis data files 09230410 and 09230411.

i. September 23, 2004 – 1547 hours XSD MINICAMS alarmed for HD at 1.09 TWA with subsequent alarms of 1.95 TWA at 1557 hours and 1.64 TWA at 1607 hours. The FPD MINICAMS alarmed at 1548 hours for VX at 1.02 TWA with subsequent cycles dropping to 0.36 TWA at 1553 hours and 0.00 TWA at 1603. The MINICAMS alarms were determined to be interference from high levels of volatile and semivolatile organic compounds, including 2-methoxy furan, 1,1,2,2-tetrachloroethane, benzaldehyde, phenol, gasoline/diesel series alkanes and associated combustion, degradation, and decomposition products. See Enclosure 9 for QS Daily NRT Monitoring Report dated 092304 and GC/MS confirmation analysis data files 09230413 and 09230414.

j. September 24, 2004 – 1407 hours; Item/bottle #12 of 13 being sniffed alarmed at 0.98 TWA for Lewisite with a second alarm of 1.18 TWA at 1417 hours. The heat traced sample lines were removed and the Lewisite levels trended down to background levels. The MINICAMS alarm was determined to be a false alarm due to 1,1,2,2-tetrachloroethane, 1,2-dithiolane, acetophenone, benzaldehyde, 2-pentanone, diesel series alkanes and associated combustion, degradation, and decomposition products See Enclosure 10 for the QS letter dated September 24, 2004, which contains the narrative pertaining to the analysis of the 13 recovered bottles, the QS Daily NRT Monitoring Report for 092404, and the GC/MS confirmation data analysis files associated with the DAAMS tubes for each bottle listed in the table attached to the QS letter of September 24, 2004.

k. September 24, 2004 – 1538 hours; Item/bottle #13 of 13 being sniffed alarmed at 12.9 TWA for VX on the fourth cycle after the heat traced sample line/probe was removed. Subsequent cycles at 15.5 TWA (1543 hours) and dropping to 4.77, 2.91, 2.55, 2.18, 1.81, 1.74, 1.62, 1.71, 1.59, 1.86, and 1.96 TWA at 1638 hours (16 cycles after heat traced sample line/probe was removed from sample). At 1653, the apparent VX level dropped to 0.43 TWA which was below the 0.75 TWA alarm level. Continual

alarming for 16 cycles after removal of the heat traced sample line/probe indicates massive exposure and contamination. Subsequent GC/MS analysis of the DAAMS tubes indicates that the false VX alarm is primarily due to a very high level of toluene that coelutes with the G-analog of VX causing the MINICAMS to alarm. In addition, the following contaminants were identified: 1,1,2,2-tetrachloroethane, 1,2-dithiolane, acetophenone, benzaldehyde, 2-pentanone, diesel series alkanes and associated combustion, degradation, and decomposition products. See Enclosure 10 for the QS letter dated September 24, 2004, which contains the narrative pertaining to the analysis of the 13 recovered bottles, the QS Daily NRT Monitoring Report for 092404, and the GC/MS confirmation data analysis files associated with the DAAMS tubes for each bottle listed in the table attached to the QS letter of September 24, 2004.

j. September 29, 2004 – 1731 hours; Hotbox T38A-014 being sniffed to determine 3X status alarmed at 4.29 TWA for HD with a second alarm at 4.43 TWA after which the heat traced sample line was removed. A third alarm at 3.73 TWA was a result of carryover/contamination of the heat traced sample line/probe and instrument. The MINICAMS alarm was determined to be a false positive due to interference from tetrachloroethylene, 1,1,2,2-tetrachloroethane, gasoline/diesel series alkanes and associated combustion, degradation, and decomposition products. See Enclosure 11 for QS letter dated September 29, 2004, QS Daily NRT Monitoring Report for 092904, and GC/MS confirmation analysis data files 09290414 and 09290415.

3. Sampling & Analysis of Unknown Bottles Recovered during Site T38 3X Scrap Recover Operations

Thirteen bottles with unknown contents were recovered from Site T38 during 3X excavation operations. HAZCAT screening tests were performed, low-level near-real time monitoring performed to determine presence/absence CWM, and DAAMS sample tubes collected and analyzed by GC/MS to identify the contents of the bottles for waste stream profiling by the waste disposal contractor. Samples were collected for analysis from ten bottles on 092204 and three bottles on 092404.

There was no CWM (VX as the G-analog, GB, HD, or Lewisite as the 1,3-propanedithiol derivative) detected levels great than or equal to 1.0 TWA. All CWM analytical results were less than 1.0 TWA. Full scan GC/MS analysis provided a list of tentatively identified compounds (TICs) as well as Quality Index (QI) values related to confidence in the tentative identifications.

Results of the MINICAMS headspace analysis of the samples that resulted in a MINICAMS alarm/ring-off and associated DAAMS tube GC/MS confirmation analysis are discussed above in paragraph 2. Discussion/results are contained in the QS letter dated September 24, 2004, attached table, QS Daily NRT Monitoring Report dated 092404, and data files included at Enclosure 10.

4. Site T24A Gas Cylinder Sampling & Analysis Operations

Integrated Environmental Services (IES) was contracted by Shaw Group to safely puncture and sample the contents of a small cylinder recovered during 3X scrap recovery excavation at Site T24A and ultimately properly transporting and disposing of the cylinder/contents upon confirming/denying the presence of CWM and identifying the contents of the cylinder. After IES punctured the cylinder on August 10, 2004, samples were collected into Tedlar bags and then transferred under vacuum to DAAMS tubes for low-level CWM analysis and to tentatively identify the contents of the cylinder for waste profiling.

There was no CWM (VX as the G-analog, GB, HD, or Lewisite as the 1,3-propanedithiol derivative) detected at or greater than 1.0 TWA. GC/MS scan analysis and data interpretative tentatively identified p-xylene, undecane, butane; other gasoline/diesel series alkanes, acetophenone, benzaldehyde, and other benzene derivatives as the contents of the cylinder. See Enclosure 12 for the QS letter dated August 11, 2004 and GC/MS confirmation analysis data files 08100409, 08100410 and 08100411.

5. If you have any questions or QS can be of further service, please contact QS at the address and phone number included at the top of the letter head on page 1.

12 Enclosures

Respectfully Submitted:

Patti Riggs
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Analysts of Record

Robert H. Lee, EAC-NRCC
Principal Chemist
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Air Monitoring Report for Training Area T24A, Former Chemical Munitions Disposal Area, Parcel 187(7), Fort McClellan, Calhoun County, Alabama

I. Introduction

QuickSilver Analytics, Inc., (QS) provided near real-time chemical warfare materiel (CWM) personnel health and safety air monitoring support and chemical warfare materiel (CWM) hotbox headspace clearance for ordnance explosive (OE) scrap, non-OE scrap, and OE cement scrap removed from the anomalies at Site T24A, also known as Training Area T24A, Former Chemical Munitions Disposal Area, Parcel 187(7). Historical/confirmatory air monitoring samples were collected daily on Depot Area Air Monitoring System solid sorbent tubes (DAAMS tubes) and were analyzed, if required, to confirm/negate an alarm from the Miniature Continuous Air Monitoring System (MINICAMS®). QS and United States Army (USA) Technical Escort Unit (TEU) personnel and equipment arrived onsite the week of November 3-7, 2003. The equipment consisted of two analytical platforms (vans) with onboard power generation units, gas generators, heating, ventilation & air conditioning (HVAC) systems and bench space for the required instrumentation. One van was primarily outfitted with two MINICAMS® for near real-time air monitoring and the second van was equipped for analysis of DAAMS tubes using a CDS Analytical IACEM 980-series DAAMS tube thermal desorption system integrated with an Agilent Technologies (AT) 6852 gas chromatograph (GC) with dual flame photometric detectors (DFPD) and HP/AT 5973 mass selective detector (MSD).

QS/TEU personnel unpacked the equipment/instrumentation and began setting up the mobile laboratories at the Shaw Group office/storage yard on November 3, 2003. Shore power was limited to several 15/20-amp circuits that were used to maintain overnight storage power for environmental controls and the instruments. Onboard 8000-watt diesel generators were used during daily startup, movement, and on/offsite operations. MINICAMS® calibration and operational verification data (onsite precision & accuracy studies) were collected and analyzed from November 3-11, 2003, to verify proper equipment operation. Four MINICAMS® methods for detection of mustard (HD), Lewisite (L), Sarin (GB), and the persistent nerve agent VX were certified for use at Ft.McClellan, Alabama. These methods are designated as a 5 minute GB/FPD method, a 5 minute VX/FPD method, a 10-minute HD/halogen selective detector (XSD) method, and a 10 minute L/XSD method.

Initially, four DAAMS tube analytical methods for confirmation of MINICAMS® alarms were certified on the AT6852 DFPD/5973 MSD from November 3-10, 2003. These methods were for analyzing VX as the G-analog, GB, and HD on the GC/FPD and Lewisite (L) as the 1,3 propanedithiol derivative (L-PDT) of Lewisite on the GC/MSD in the selective ion monitoring (SIM) mode. Additional analytes (G-analog of VX, GB, and HD were added to the GC/MSD/SIM method as time permitted. Analysis of VX as the G-analog using GC/MSD/SIM required that the low end calibration point be 1.0 TWA and the mid- and high end calibration points be 10 and 15 TWA due to difference in

sensitivity of the GC/MSD/SIM versus the GC/FPD The certification of these additional analytes/method was completed on December 12, 2003.

QS/TEU personnel attended a work plan/health & safety briefing and kickoff meeting November 10, 2003 at the Shaw Group office. Active site operations at T24A commenced on December 02, 2003 after the activities at T38 were halted and were shutdown for Christmas/New Year's holiday season on December 12, 2003. T24A operations restarted on January 15, 2004 and were completed on February 13, 2004.

II. Operations

Daily site monitoring operations were conducted for intrusive operations (active excavation of soil), soil screening, and 3X clearance of hotboxes containing OE scrap, non-OE scrap, and OE cement scrap. These operations consisted of the following:

a. Calibration/challenge and low-level near-real time monitoring with VX/GB FPD MINICAMS®.
b. Calibration/challenge and low-level near-real time monitoring with HD/L XSD MINICAMS®.
c. Calibration of the AT 6852 DFPD GC for VX, GB, and HD DAAMS tube confirmation.
d. Tune and calibration/challenge of the AT6852/5973 MSD for VX, GB, HD, and L-PDT DAAMS tube confirmation.
e. Periodic direct reading low-level air monitoring for phosgene and cyanogen chloride of the worker's breathing zone using Draeger tubes and portable electric sampling pumps.
f. Continuous collection of breathing zone and perimeter air samples via DAAMS tubes/portable pumps for confirmation/verification of presumptive positive MINICAMS® alarm, as required.

Primary NRT air monitoring analysis for VX/GB was performed using a CMS Research Corporation (OI Analytical) MINICAMS® equipped with a flame photometric detector (FPD). NRT air monitoring analysis for HD and L was performed using a CMS Research Corporation (OI Analytical) MINICAMS® equipped with an XSD. DAAMS samples were collected immediately downwind from the excavation and at three DAAMS stations spread out in a semicircle approximately 25 meters downwind of and lateral to the excavation/screening location. These tubes were collected and analyzed, if required, by GC/FPD or GC/MSD/SIM to confirm/negate a presumptive positive MINICAMS® detection/alarm.

The breathing zone air at the excavation/screening sites were periodically screened for gross organics by Shaw Group safety personnel using organic vapor monitor (OVM) with FID and an/or OVM with PID.

III. Summary of Results

A. Training Area T-24A, Former Chemical Munitions Disposal Area, Parcel 187(7), Fort McClellan, Calhoun County, Alabama

CWM was not detected during intrusive operations, soil-screening operations, or headspace clearance of OE scrap, non-OE scrap, or OE cement scrap contained in a temperature/environmentally-controlled hotbox. All NRT air monitoring results were less than 1.0 TWA/AEL (the military regulatory limit) and 0.75 TWA (the client's designated alarm alarm/reporting level). Air monitoring operations were conducted from December 02-12, 2003 and January 15-February 13, 2004.

B. MINICAMS® 3X Hotbox Results

Hotboxes were filled with the referenced materials, sealed, and heated to a minimum temperature of 70°F and held at or above 70°F for at least four (4) hours to allow vapors to volatilize in the headspace of the box above the scrap. The headspace above the heated scrap was sampled and analyzed for the presence of CWM. CWM results for all hotboxes were < 1.0 TWA, which allows transport by an approved waste hauler to an approved, licensed treatment, storage, and disposal facility (TSDF) for incineration to 5X. Hotbox data is summarized in the table below.

Hotbox/MINICAMS® CWM Headspace Analysis by Date/Time					
Box Number	**Contents**	**Test Date**	**Results**	**70°F Time**	**Test Time**
T24A-002	OE Scrap	012304	<1.0 TWA	1238	1638
T24A-003	OE Scrap	012404	<1.0 TWA	1109	1509
T24A-004	OE Scrap	012604	< 1.0 TWA	0952	1408
T24A-005	OE Scrap	012704	< 1.0 TWA	0920	1320
T24A-006	OE Scrap	013004	<1.0 TWA	0930	1330
T24A-007	OE Scrap	020304	< 1.0 TWA	1123	1539
T24A-008	OE Scrap	020404	< 1.0 TWA	1106	1556
T24A-009	OE Scrap	020504	< 1.0 TWA	0902	1513
T24A-010	OE Scrap	020604	<1.0 TWA	0607	1007
T24A-S-01	Non OE Scrap	020604	<1.0 TWA	1127	1527
T24A-S-02	Non OE Scrap	020704	< 1.0 TWA	1123	1523
T24A-C-01	OE Cement Scrap	020904	< 1.0 TWA	1237	1637
T24A-C-02	OE Cement Scrap	021004	< 1.0 TWA	0908	1335
T24A-C-03	OE Cement Scrap	021104	<1.0 TWA	0710	1114
T24A-S-03	Non OE Scrap	021104	<1.0 TWA	1205	1614
T24A-S-04	Non OE Scrap	021204	<1.0 TWA	0605	1005
T24A-011	OE Scrap	021204	< 1.0 TWA	1113	1513
T24A-001	OE Scrap	021304	<1.0 TWA	0730	1134

Upon successful analysis of the last hotbox (T24A-001) at 1134 hours on February 13, 2003, the QS/TEU personnel returned to the Shaw Group office/storage site and began uninstalling instruments, packing equipment/supplies for transport, cleaning/servicing van/generator's, as required, and repacking equipment/transport containers into the mobile monitoring vans. USA TEU personnel and equipment departed Ft. McClellan, Alabama, on February 13, 2004, and QS personnel departed on February 17, 2004.

If you have any questions regarding this report or we can be of further service to you please contact us at (410) 676-4300, (410) 676-4004 FAX; or via website at www.qckslvr.com.

Thank you,

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Air Monitoring Report for Training Area T-38, Former Technical Escort Reaction Area, Parcel 186(6), Fort McClellan, Calhoun County, Alabama

I. Introduction

QuickSilver Analytics, Inc., (QS) provided near real-time chemical warfare materiel (CWM) personnel health and safety air monitoring at Site T38A, also known as, Training Area T38, Former Technical Escort Reaction Area, Parcel 186(6). Historical/confirmatory air monitoring samples were collected daily on Depot Area Air Monitoring System solid sorbent tubes (DAAMS tubes) and were analyzed, if required, to confirm/negate an alarm from the Miniature Continuous Air Monitoring System (MINICAMS®). QS and United States Army (USA) Technical Escort Unit (TEU) personnel and equipment arrived onsite the week of November 3-7, 2003. The equipment consisted of two analytical platforms (vans) with onboard power generation units, gas generators, heating, ventilation & air conditioning (HVAC) systems and bench space for the required instrumentation. One van was primarily outfitted with two MINICAMS® for near real-time air monitoring and the second van was equipped for analysis of DAAMS tubes using a CDS Analytical IACEM 980-series DAAMS tube thermal desorption system integrated with an Agilent Technologies (AT) 6852 gas chromatograph (GC) with dual flame photometric detectors (DFPD) and HP/AT 5973 mass selective detector (MSD)

QS/TEU personnel unpacked the equipment/instrumentation and began setting up the mobile laboratories at the Shaw Group office/storage yard on November 3, 2003. Shore power was limited to several 15/20-amp circuits that were used to maintain overnight storage power for environmental controls and the instruments. Onboard 8000-watt diesel generators were used during daily startup, movement, and on/offsite operations. MINICAMS® calibration and operational verification data (onsite precision & accuracy studies) were collected and analyzed from November 3-11, 2003, to verify proper equipment operation. Four MINICAMS® methods for detection of mustard (HD), Lewisite (L), Sarin (GB), and the persistent nerve agent VX were certified for use at Ft.McClellan, Alabama. These methods are designated as a 5 minute GB/FPD method, a 5 minute VX/FPD method, a 10-minute HD/halogen selective detector (XSD) method, and a 10 minute L/XSD method.

Initially, four DAAMS tube analytical methods for confirmation of MINICAMS® alarms were certified on the AT6852 DFPD/5973 MSD from November 3-10, 2003. These methods were for analyzing VX as the G-analog, GB, and HD on the FPD and Lewisite (L) as the 1,3 propanedithiol derivative (L-PDT) of Lewisite on the MSD in the selective ion monitoring (SIM) mode.

QS/TEU personnel attended a work plan/health & safety briefing and kickoff meeting November 10, 2003 at the Shaw Group office. Site operations at T38 commenced on

November 11, 2003 and were shutdown due to operational/safety issues on November 26, 2003.

Operations atT38A were never restarted/completed. This work will be performed after reassessment of the risk/site designation, new plans are developed and approved, additional/required funding approved, and an agency/organization designated to perform the work.

II. Operations

Daily site monitoring operations were conducted for intrusive operations (active excavation of soil). These operations consisted of the following:

a. Calibration/challenge and low-level near-real time monitoring with VX/GB FPD MINICAMS®.
b. Calibration/challenge and low-level near-real time monitoring with HD/L XSD MINICAMS®.
c. Calibration of the AT 6852 DFPD GC for VX, GB, and HD DAAMS tube confirmation.
d. Tune and calibration/challenge of the AT6852/5973 MSD for VX, GB, HD, and L-PDT DAAMS tube confirmation.
e. Periodic direct reading low-level air monitoring for phosgene and cyanogen chloride of the worker's breathing zone using Draeger tubes and portable electric sampling pumps.
f. Continuous collection of breathing zone and perimeter air samples via DAAMS tubes/portable pumps for confirmation/verification of presumptive positive MINICAMS® alarm, as required.

Primary NRT air monitoring analysis for VX/GB was performed using a CMS Research Corporation (OI Analytical) MINICAMS® equipped with a flame photometric detector (FPD). NRT air monitoring analysis for HD and L was performed using a CMS Research Corporation (OI Analytical) MINICAMS® equipped with an XSD. DAAMS samples were collected immediately downwind from the borehole and at three DAAMS stations spread out in a semicircle approximately 25 meters downwind of and lateral to the excavation/screening location. These tubes were collected and analyzed by GC/FPD or GC/MSD to confirm/negate a presumptive positive MINICAMS® detection/alarm.

The breathing zone air at the excavation/screening sites were periodically screened for gross organics by Shaw Group safety personnel using organic vapor monitor (OVM) with FID and an/or OVM with PID.

III. Summary of Results

A. Site T38 - Training Area T38, Former Technical Escort Reaction Area, Parcel 186(6), Fort McClellan, Calhoun County, Alabama

Shaw Group site operations at T38 commenced on November 11, 2003 and were shutdown due to operational/safety issues on November 26, 2003. The USATEU conducted destruction/demilitarization operations for a CAIS vial containing blister agent under contract to the PM Non-Stockpile just prior to shutting down site operations for Christmas/New Years. The PM Non-Stockpile/US TEU destruction/demilitarization activities are not covered by this report.

CWM was not detected during intrusive operations (soil excavation). All NRT air monitoring results were less than 1.0 TWA/AEL (the military regulatory limit) and 0.75 TWA (the client's designated alarm/reporting level) except for sample(s)/data collected starting at 1100 hours on November 17, 2003 and ending at 0059 hours on November 18, 2003 when the analytical platform generator ran out of fuel. Air sample(s) were collected by the sample probe(s)/heat traced sample line(s) placed under a sheet of plastic covering the small dirt pile/brown sample jar. During intrusive excavation operations a small brown laboratory bottle with an intact seal/lid and containing a liquid were discovered in the bucket of the excavator. The dirt containing the brown bottle was carefully deposited on the ground, covered with a sheet of plastic (weighted down around the edges by rocks, and the MINICAMS® probes and DAAMS sample pumps were placed under the plastic to sample. The purpose was to determine if the soil and any residual liquids/vapors from the brown bottle were CWM.

The initial alarm was for 4.93 TWA HD starting with the sample collected at 1100 hours; the highest alarm reading was 5.04 TWA HD at 1109 hours. Recorded HD levels continued to slowly drop later in the afternoon/evening as environmental conditions (air/wind speed, wind direction, temperature, moisture/humidity) changed with the time of day/night. The lowest reported airborne concentration was 0.46 TWA at 2329 hours on 11/17/2003. Airborne concentrations fluctuated up and down between 0.46 TWA at 2329 hours and 0.85 TWA in the late evening/early morning with the final airborne concentration reported at 0.61 TWA at 0059 hours when the generator ran out of fuel.

Authorization to collect/recover the DAAMS tubes/pumps was given on November 20, 2003. The DAAMS pumps/tubes were retrieved on the morning of November 20, 2003 and transferred to the QS DAAMS GC/DFPD/MSD analyst. The sample pumps were calibrated for a flow rate of 200 mL/minute and sample time was set for 120 minutes. Ideally, the sample pumps/tubes were to have been collected after the second MINICAMS alarm (approximately 24 minutes after the start of the sampling time for the first alarm) to give a minimum of 4.8 liters of air concentrated on the sorbent beds. However, due to operational/safety issues, the van/NRT monitoring equipment and DAAMS pumps/tubes were left in place and the site secured/evacuated until the DAAMS pumps/tubes were retrieved for analysis on the morning of November 20, 2003. The DAAMS pumps actively sampled for 120 minutes before shutting off resulting in 24 liters

of air being concentrated on the DAAMS tubes (10X greater potential concentration). In addition to the concentration of 24 liters of air onto the sorbent beds, the DAAMS tubes were passively exposed to the contaminated atmosphere under the plastic sheet for 70+ hours from the time the sampling pumps shut down until the DAAMS tubes/pumps were recovered by Shaw Group personnel for transfer to the QS/TEU mobile monitoring van.

Tube 132 was run on the GC/DFPD; tube 075 was run on GC/MSD/SCAN (full scan); tube 141 was run on GC/MSD/SIM (selected ion monitoring); and tube 072 was run on GC/MSD/SCAN (full scan). The results of the analysis are presented below.

Tube	**Method/Data File**	**Results/Identification**
132	FPD/ (112003/11200304)	0.19 TWA HD instrument value; calculated value accounting for volume of air concentrated onto sorbent bed = 0.019 TWA HD (<calculated MDL) Cannot calculate an accurate adjusted TWA value since the sorbent tubes were passively exposed to the air under the plastic for some 70+ hours after the pumps shut off (due to operational issues/safety concerns delayed collecting tubes). TWA calibration calculations for 1.0 TWA were based on collecting air at 200 mL/minute for 12 minutes with 2.4 liters air sampled. This data and value must be significantly tempered by the unknown affect of exposure of the sorbent tubes to passive absorption of contaminants for the 70+ hours that the tubes remained under the plastic after the pump shut off. Additional tubes were run for better confirmation and potential identification of constituents.
075	MSD/FTMCSCAN (112003/11200307)	HD = ND (not detected) 1,1,2,2 tetrachloroethane (Quality Index = QI=93) (Retention time = RT=3.66) Other constituents (RT=4.0 to ~RT=6.4), assorted diesel series alkanes
141	MSD/FTMCSIM2 (112003/11200310)	HD = ND Characteristic diesel series alkane pattern from RT=~3.6 to RT=~6.6

072	MSD/FTMCSCAN (112003/11200312)	HD = ND 1,1,2,2 tetrachloroethane (QI=93) (RT=3.64) Other constituents (RT=4.0 to ~RT=5.5), assorted diesel series alkanes (RT=5.65; 6.04) Diethyl phthalate

B. MINICAMS® 3X Hotbox Results

There were no hotboxes of any type scrap generated during the activities at T38; therefore, there are no hotbox monitoring results.

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